

Claims

1. Take-up device for web-shaped materials, especially plastic films, with a take-up roller (1) and a contact roller (1) which presses the web-shaped material (2) against the take-up roller (1) by means of a peripheral compressive surface, characterized by the following features:

- there is at least one bearing unit (5) which acts between the ends of the contact roller (4) on its peripheral compressive surface and supports the contact roller (4),
- at least one bearing unit (5) is adjustable in at least two directions which run perpendicular to one another,
- the contact roller (4) is made flexurally soft such that by moving at least one bearing unit (5) the bending line of the contact roller (4) can be influenced in a purposeful manner.

2. Take-up device as claimed in claim 1, wherein the diameter of the contact roller (4) is:

- a maximum 550 mm, especially a maximum 400 mm when its working width is more than 8 m,
- a maximum 400 mm, especially a maximum 300 mm, when its working width is between 3 and 8 m,
- a maximum 200 mm when its working width is less than 3 m.

3. Take-up device as claimed in claim 1 or 2, wherein there are sensor means (27, 28, 30) which detect the position, path, force and/or acceleration of the contact roller (4) via the bearing unit(s) (5), and wherein there is a control means which controls the adjustment of the bearing unit(s) (5) and thus the setting of the bending line and/or damping of the contact roller (4) depending on the data acquired by the sensor means (27, 28, 30).

4. Take-up device as claimed in one of the preceding claims, wherein along the contact

roller (4) there are a plurality of bearing units (5) which are adjustable independently of one another in different directions.

5. Take-up device as claimed in one of the preceding claims, wherein the contact roller (4) in the area of at least one bearing unit (5) is made more flexurally soft than in the other areas.

6. Take-up device as claimed in one of the preceding claims, wherein at least one bearing unit (5) consists of an air or magnetic bearing.

7. Take-up device as claimed in one of the preceding claims, wherein the bearing unit (5) comprises a vertical bearing segment (7) which vertically supports the contact roller (4) and a horizontal bearing segment (8) which horizontally supports the contact roller (4) and which is movably guided in or on the vertical bearing segment (7).

8. Take-up device as claimed in claim 7, wherein the vertical bearing segment (7) and the horizontal bearing segment (8) are interdigitally internested.

9. Take-up device as claimed in claim 7 or 8, wherein there is a base support (6) which is located parallel to the contact roller (4) and in or on which the vertical bearing segment (7) can move vertically and is supported floating in the horizontal direction.

10. Take-up device as claimed in one of claims 7 to 9, wherein the vertical bearing segment (7) has two bearing legs (7a, 7b) which support the contact roller (4) from opposing sides and between which the horizontal bearing segment (8) can be moved.

11. Take-up device as claimed in claim 10, wherein each bearing leg (7a, 7b) has two spaced bearing fingers (11) between which the horizontal bearing segment (8) can be moved.

12. Take-up device as claimed in one of claims 9 to 11, wherein within the base support (6) there is an intermediate support (14) for the vertical bearing segment (7) with a vertical movement capacity, in which the vertical bearing segment (7) is fixed vertically and is

supported to float horizontally, and wherein between the base support (6) and the intermediate support (14) a vertical actuator (18) is active in order to keep the intermediate support (14) in a certain vertical position.

13. Take-up device as claimed in one of claims 7 to 12, wherein the horizontal bearing segment (8) is made piston-like and can be adjusted in the direction of the contact roller (4) by a horizontal actuator (20) which acts between the base support (6) and the horizontal bearing segment (8).

14. Take-up device as claimed in one of claims 7 to 13, wherein between the vertical bearing segment (7) and the base support (6) there are sensor means (27, 28) for detecting the bearing forces, position and/or vibrations of the vertical bearing segment (7).

15. Take-up device as claimed in one of claims 7 to 14, wherein between the horizontal bearing segment (8) and the base support (6) there are sensor means (30) for detecting the bearing forces, position and/or vibrations of the horizontal bearing segment (8).

16. Take-up device as claimed in one of the preceding claims, wherein at least one bearing unit (5) is adjustable in the axial direction of the contact roller (4).

17. Take-up device as claimed in one of the preceding claims, wherein in the middle area of the contact roller (4) there are more bearing units (5) than toward the ends of the contact roller (4).

18. Take-up device as claimed in one of claims 10 to 17, wherein at least one bearing leg (7a) is located to be able to swivel on the retaining arm (9) of the vertical bearing segment (7).

19. Take-up device as claimed in one of the preceding claims, wherein the contact roller (4) is supported at several positions over the working width by bearing units in the form of short rubber rollers.